

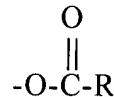
REMARKS

With the above amendments, claims 1-12 have been amended and claim 14 has been added. Accordingly, with the above amendments, claims 1-14 are pending and ready for further action on the merits. No new matter has been incorporated. New claim 14 comes from original claims 1 and 2. The amendment to claim 1 comes from page 22, lines 6-7 and page 1, line 18 to page 2 line 14, and also from Tables 7 and 8. The amendment to claim 2 comes from page 16, formula (b) and lines 1-15 on page 17.

Specification Objections

The written description has been objected to for various informalities. The written description has been amended in several places to correct deficiencies. No new matter has been incorporated.

All occurrences of the word "imidazol" have been changed to "imidazole" as recommended by the Examiner. The Examiner asserts that the formulas (e), (g), and (h) that appear on page 16 are incorrect. The Applicants must respectfully disagree. In particular the Examiner has objected to "OCOR" in formulas (e) and (h). "OCOR" refers to the following group



and as such it believe that it is not incorrect.

The Examiner has also objected to the group "N•HOOCR". The Applicants must respectfully disagree that this notation is incorrect. By this notation, the Applicants are referring to the salt of the amine. This notation is art-recognized. Withdrawal of these rejections is requested.

Rejections under 35 USC §102/103

Claims 1-13 have been rejected under 35 USC §102(b) as being anticipated, or in the alternative, under 35 USC §103(a) as being unpatentable over Hutcheson '334 (US Patent No. 5,393,334), Hutcheson '753 (US Patent No. 5,417,753), or Padbury '967 (US Patent No. 2,772,967). With the above amendments to the claims, they are no longer anticipated or rendered obvious by Hutcheson '334, Hutcheson '753, or Padbury '967. Withdrawal of the rejections are respectfully requested.

Rejections under 35 USC §112, second paragraph

Claims 1-13 have been rejected under 35 USC §112, second paragraph as being indefinite. The Examiner asserts that the word "efficiencies" is not an art-recognized term.

The claims have been amended to recite the word "property" as suggested by the Examiner. It is believed that this rejection has now been overcome. Withdrawal of the rejection is respectfully requested.

The Examiner has also rejected the language "subjecting the resultant". This language has been amended to recite "subjecting the pulp recite". It is believed that this rejection has now been overcome. Withdrawal of the rejection is respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

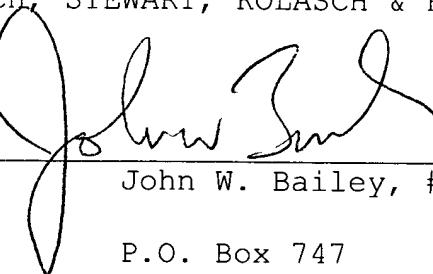
If any questions remain regarding the above matters, please contact Applicant's representative, John W. Bailey, in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By



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VERSION WITH MARKINGS TO SHOW CHANGES MADEIN THE SPECIFICATION

The paragraph beginning on page 15, line 5, has been amended as follows:

(C) The amide, (D) the amine, (E) the acid salt of amine, (F), the quaternary ammonium salt, (G) the [imidazol] imidazole may be cited as a compound represented by the following formula [(b) to (j)] (b)-(c), (d)-(f), (g), (h)-(i), and (j), respectively. The acid salt of amine may include ionized or non-ionized one.

IN THE CLAIMS

1[,]. (Amended) A paper quality improver for paper making, which is internally added to a pulp blend containing a deinked pulp in an amount of 10% or more by weight in a material pulp, either before or in a paper making step; and

which paper quality improver comprises a compound having a lyotropic degree as defined below of not less than 4%, and

which provides at least two [of any efficiencies] properties selected from the following paper quality improving [efficiencies] properties (i) to (iii):

(i) standard improved bulky value of at least 0.02 g/cm³,

(ii) standard improved brightness of at least 0.5 point, and

[.] (iii) standard improved opacity of at least 0.5 point; and wherein the

$$\text{lyotropic degree (\%)} = (\alpha_0 - \alpha) / \alpha_0 \times 100$$

wherein α : the water content in a wet sheet obtained by

adding 5 parts by weight of the compound, which is the paper quality improver for the paper making to 100 parts by weight of the pulp blend and subjecting the [resultant] pulp blend to [the] papermaking; and

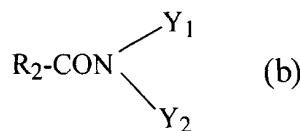
α_0 : the water content in a wet sheet obtained by

subjecting the pulp blend to [the] papermaking without adding the compound, which is the paper quality improver for the papermaking, to the pulp blend.

2[.]. (Amended) The paper quality improver for papermaking as claimed in Claim 1, wherein the compound is selected from the group consisting of (A) organosiloxane, (B) glyceryl ether, (C) amide, (D) amine, (E) acid salt of

amine, (F) quaternary ammonium salt, (G) [imidazol] imidazole, (H) ester of polyhydric alcohol and fatty acid and (I) alkylene oxide-added ester being an ester derived from polyhydric alcohol and fatty acid and having from more 0 mole to less 12 moles on average of C₂₋₄ alkylene oxide group per 1 mole of the ester

wherein the amide is not formula (b)



wherein R₂ represents an alkyl group, alkenyl group, or a hydroxyalkyl group having 7 to 35 carbons, and Y₁ and Y₂ are the same or different and represent a hydrogen atom, R₄, R₆CO, -(AO)_n-COR₃ or -(AO)_nH;

wherein R₄ represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, R₃ and R₆ each represent an alkyl group, alkenyl group, or a hydroxyalkyl group having 7 to 35 carbons, AO represents alkylene oxide, and n is an average number of added moles of 1 to 20.

3[,]. (Amended) A paper quality improver [composition] for papermaking as claimed in Claim 1 or 2, which further comprises [the paper quality improver for papermaking claimed in Claim 1 and further comprises] at least one

compound selected from (a) anionic surfactant and (b) cationic surfactant.

4[,]_. (Amended) A paper quality improver for papermaking as claimed in claim 1 or 2, which provides a standard improved bulky value of at least 0.02 g/cm³ [improver for papermaking, which comprises the compound as defined in Claim 1].

5[,]_. (Amended) A paper quality improver for papermaking as claimed in Claim 1 or 2, which provides a standard improved brightness of at least 0.5 point [improver for papermaking, which comprises the compound as defined in Claim 1].

6[,]_. (Amended) [An] A paper quality improver for papermaking as claimed in Claim 1 or 2, which provides a standard improved opacity of at least 0.5 point [improver for papermaking, which comprises the compound as defined in Claim 1].

7[,]_. (Amended) A method for producing a pulp sheet, wherein the paper quality improver for papermaking as defined in Claim 1 is added [at anytime] before or in the papermaking step.

8[,]_. (Amended) A method for producing a pulp sheet, wherein the paper quality improver for papermaking as defined in Claim 1 and an agent for promoting to fix the paper quality improver for papermaking onto the pulp sheet are added [at anytime] before or in the papermaking step.

9[,]_. (Amended) A pulp sheet produced by adding the paper quality improver for papermaking as defined in Claim 1 [at anytime] before or in the papermaking step.

10[,]_. (Amended) A method for producing a pulp sheet, modified to satisfy at least two [of any ones] properties selected from the following (1) to (3), which comprises:

adding internally a compound having a lyotropic degree as defined below of not less than 4% before or in a papermaking step into pulp slurry, and

subjecting the [resultant] pulp to [the] a papermaking:

$$\text{lyotropic degree (\%)} = (\alpha_0 - \alpha) / \alpha \times 100$$

wherein α : the water content in a wet sheet obtained by

adding 5 parts by weight of the compound which is the paper quality improver for the papermaking to 100 parts by weight of pulp, and

subjecting the [resultant] pulp to the papermaking; and α_0 : the water content in a wet sheet obtained by subjecting pulp to the papermaking without adding the compound which is the paper quality improver for the papermaking to the pulp;

- (1) improved bulky value of at least 0.02 g/cm³,
- (2) improved brightness of at least 0.5 point, and
- (3) improved opacity of at least 0.5 point.

11[,]. (Amended) A method for modifying a pulp sheet, which comprises internally adding a compound having the lyotropic degree as defined in Claim 10 of not less than 4%, before or in the paper making step into a pulp slurry to provide at least two of [any ones selected from] the properties (1) to (3) as defined in Claim 10 to the pulp sheet.

12[,]. (Amended) A modified pulp sheet which satisfies at last two [of any ones] properties selected from (1) to (3) as defined in Claim 10, which pulp sheet is obtained by internally adding the compound having the lyotropic degree as defined in Claim 10 of not less than 4% into pulp slurry before or in the papermaking step.

The following new claim has been added.

--14. (New) A paper quality improver for papermaking, which is internally added to a pulp blend containing a deinked pulp in an amount of 10% or more by weight in a material pulp, either before or in a papermaking step;

and

which paper quality improver comprises a compound having a lyotropic degree as defined below of not less than 4%, and

which provides at least two properties selected from the following paper quality improving properties (i) to (iii):

(i) standard improved bulky value of at least 0.02 g/cm³,

(ii) standard improved brightness of at least 0.5 point,

and

(iii) standard improved opacity of at least 0.5 point; and wherein the

$$\text{lyotropic degree (\%)} = (\alpha_0 - \alpha) / \alpha_0 \times 100$$

wherein α : the water content in a wet sheet obtained by adding 5 parts by weight of the compound, which is the paper quality improver for the papermaking, to 100 parts by weight of the pulp blend and subjecting the pulp blend to papermaking; and α_0 : the water content in a wet sheet

obtained by subjecting the pulp blend to papermaking without adding the compound, which is the paper quality improver for the papermaking, to the pulp blend. The paper quality improver for papermaking as claimed in Claim 1, wherein the compound is selected from the group consisting of (A) organosiloxane, (B) glyceryl ether, (D) amine, (E) acid salt of amine, (F) quaternary ammonium salt, (G) imidazoe, (H) ester of polyhydric alcohol and fatty acid and (I) alkylene oxide-added ester being an ester derived from polyhydric alcohol and fatty acid and having from more 0 mole to less 12 moles on average of C₂₋₄ alkylene oxide group per 1 mole of the ester.--